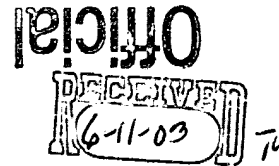


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Claims:

1. (Original) A method of operating a data communication apparatus comprising:

at each of a plurality of service specific transceivers:

receiving a plurality of input signals from a given plurality of data communications devices operating with a given data communication protocol;

aggregating each of said received plurality of input signals to result in a given service specific electrical signal;

transmitting said given service specific electrical signal to a wavelength access controller;

at said wavelength access controller:

receiving a plurality of service specific electrical signals from a plurality of service specific transceivers, at least two of said service specific transceivers operating with different data communication protocols;

converting said plurality of service specific electrical signals to a corresponding plurality of service specific optical signals;

wavelength division multiplexing said plurality of service specific optical signals to result in a wavelength division multiplexed signal; and

transmitting said wavelength division multiplexed signal over an optical conductor to an element of an optical transport network.

2. (Original) The method of claim 1 further comprising, at said wavelength access controller, classifying each of said plurality of service specific electrical signals.

3. (Original) The method of claim 1 further comprising maintaining, at said wavelength access

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controller, a database of information relating to resources in said optical transport network.

4. (Currently Amended) The method of claim 2 3 wherein said resources comprise wavelength channels between elements in said optical transport network.

5. (Original) The method of claim 3 further comprising

receiving a connection request from one of said plurality of service specific transceivers;

determining, based on said information in said database, a path through said transport network corresponding to said connection request, and

instructing said element of said optical transport network to set up said determined path through said transport network.

6. (Original) The method of claim 1 further comprising, before said converting, including header information in each of said plurality of service specific electrical signals.

7. (Currently Amended) Data communication apparatus, comprising:

a first plurality of service specific transceivers, each transceiver of said plurality of service specific transceivers for:

receiving a plurality of input signals from a first given plurality of data communications devices operating with a first given data communication protocol;

aggregating each of said received plurality of input signals to result in a first given service specific electrical signal;

transmitting said first given service specific electrical signal to a wavelength access controller;

a wavelength access controller for:

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receiving a plurality of service specific electrical signals from a said plurality of service specific transceivers, at least two of said service specific transceivers operating with different data communication protocols;

converting said plurality of service specific electrical signals to a corresponding plurality of service specific optical signals;

wavelength division multiplexing said plurality of service specific optical signals to result in a wavelength division multiplexed signal; and

transmitting said wavelength division multiplexed signal over an optical conductor to an element of an optical transport network.

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8. (Currently Amended) Data communication apparatus, comprising:

a first plurality of service specific transceivers, each transceiver of said plurality of service specific transceivers comprising:

means for receiving a plurality of input signals from a first given plurality of data communications devices operating with a first given data communication protocol;

means for aggregating each of said received plurality of input signals to result in a first given service specific electrical signal;

means for transmitting said first given service specific electrical signal to a wavelength access controller;

a wavelength access controller comprising:

means for receiving a plurality of service specific electrical signals from a said plurality of service specific transceivers, at least two of said service specific transceivers operating with different data communication protocols;

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means for converting said plurality of service specific electrical signals to a corresponding plurality of service specific optical signals;

means for wavelength division multiplexing said plurality of service specific optical signals to result in a wavelength division multiplexed signal; and

means for transmitting said wavelength division multiplexed signal over an optical conductor to an element of an optical transport network.

9. (Original) A computer readable medium for providing program control for a wavelength access controller in a wavelength access server, where said wavelength access server is communicatively coupled to both a plurality of service specific data communications devices and an element of an optical transport network, and said wavelength access controller is communicatively coupled to a plurality of service specific transceivers, said computer readable medium adapting said wavelength access controller to be operable to:

classify a service specific electrical signal from each of said plurality of service specific transceivers;

maintain a database of information relating to resources in said optical transport network;

receive a connection request, from one of said plurality of service specific transceivers, for a path through said transport network;

determine, based on said information in said database, a path through said transport network corresponding to said connection request; and

signal said element of said optical transport network to set up said determined path through said transport network.

10. (Original) A method of operating a data communication apparatus comprising:

at a wavelength access controller:

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receiving a wavelength division multiplexed signal over an optical conductor from an element of an optical transport network;

wavelength division de-multiplexing said wavelength division multiplexed signal to result in a plurality of service specific optical signals;

converting said plurality of service specific optical signals to a corresponding plurality of service specific electrical signals;

determining which of a plurality of service specific transceivers correspond to each of said plurality of service specific electrical signals;

transmitting each of said plurality of service specific electrical signals to a determined corresponding service specific transceiver;

at each of said plurality of service specific transceivers:

receiving a given service specific electrical signal from said wavelength access controller;

segmenting said given service specific electrical signal to result in a plurality of output signals; and

transmitting each of said plurality of output signals to a corresponding data communications device.

11 (Original) A data communication apparatus comprising:

a wavelength access controller comprising:

means for receiving a wavelength division multiplexed signal over an optical conductor from an element of an optical transport network;

means for wavelength division de-multiplexing said wavelength division multiplexed signal to result in a plurality of service specific optical signals;

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means for converting said plurality of service specific optical signals to a corresponding plurality of service specific electrical signals;

means for determining which of a plurality of service specific transceivers correspond to each of said plurality of service specific electrical signals;

means for transmitting each of said plurality of service specific electrical signals to a determined corresponding service specific transceiver;

at each of said plurality of service specific transceivers:

means for receiving a given service specific electrical signal from said wavelength access controller;

means for segmenting said given service specific electrical signal to result in a plurality of output signals; and

means for transmitting each of said plurality of output signals to a corresponding data communications device.

12. (Original) A data communication apparatus comprising:

a wavelength access controller for:

receiving a wavelength division multiplexed signal over an optical conductor from an element of an optical transport network;

wavelength division de-multiplexing said wavelength division multiplexed signal to result in a plurality of service specific optical signals;

converting said plurality of service specific optical signals to a corresponding plurality of service specific electrical signals;

determining which of a plurality of service specific transceivers correspond to each of said plurality of service specific electrical signals;

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transmitting each of said plurality of service specific electrical signals to a
determined corresponding service specific transceiver;

a service specific transceiver for:

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receiving a given service specific electrical signal from said wavelength access
controller;

segmenting said given service specific electrical signal to result in a plurality of
output signals; and

transmitting each of said plurality of output signals to a corresponding data
communications device.
